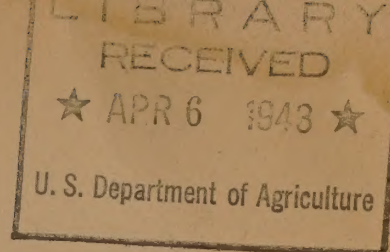


1.941  
FdInd

- 1 -

UNITED STATES DEPARTMENT OF AGRICULTURE  
U.S. Bureau of Agricultural Economics  
Washington, D. C.



July 1941

1.941  
FdInd 2

✓  
INCOMES OF TYPICAL FAMILY-OPERATED FARMS BY REGIONS

Such wide differences in organization, operation, management, income and adjustment exist among farms between farming regions in the United States that it is misleading to make any general statements concerning these farms. In most instances, the problems and maladjustments are different between groups, and no common recommendations or solutions are appropriate.

A little over a year ago, members of the Bureau of Agricultural Economics began a study of shifts in production, changes in farm organization, and the economic well being of typical family farms by regions and by types of farms.

The general procedure has been to establish complete farm organization data from 1910 to date, year by year, for typical family-operated farms. Consideration was given to changes in size of farm, shifts in acreages, introduction of new crops, changes in mechanization and technological developments and subsequent increases in efficiencies of operation and production, and changes in prices. Existing information drawn from the Census, the Crop Reporting Board, other agencies within the Department, and formal publications were used in the analysis.

Indices of net farm income and of the purchasing power of this net farm income have already been constructed for typical family farms in several farming regions of the United States. All farms are considered on an owner-operated basis. The index numbers are based in 1910-14 as 100, and apply to calendar years. Net farm income as used here is the amount which the farm operator has during the year to compensate himself and unpaid members of his family for services rendered on the farm. Only interest actually paid on farm obligations is considered as an expense. Crops on which loans were obtained but not redeemed were considered as sold.

Typical Corn Belt Farms

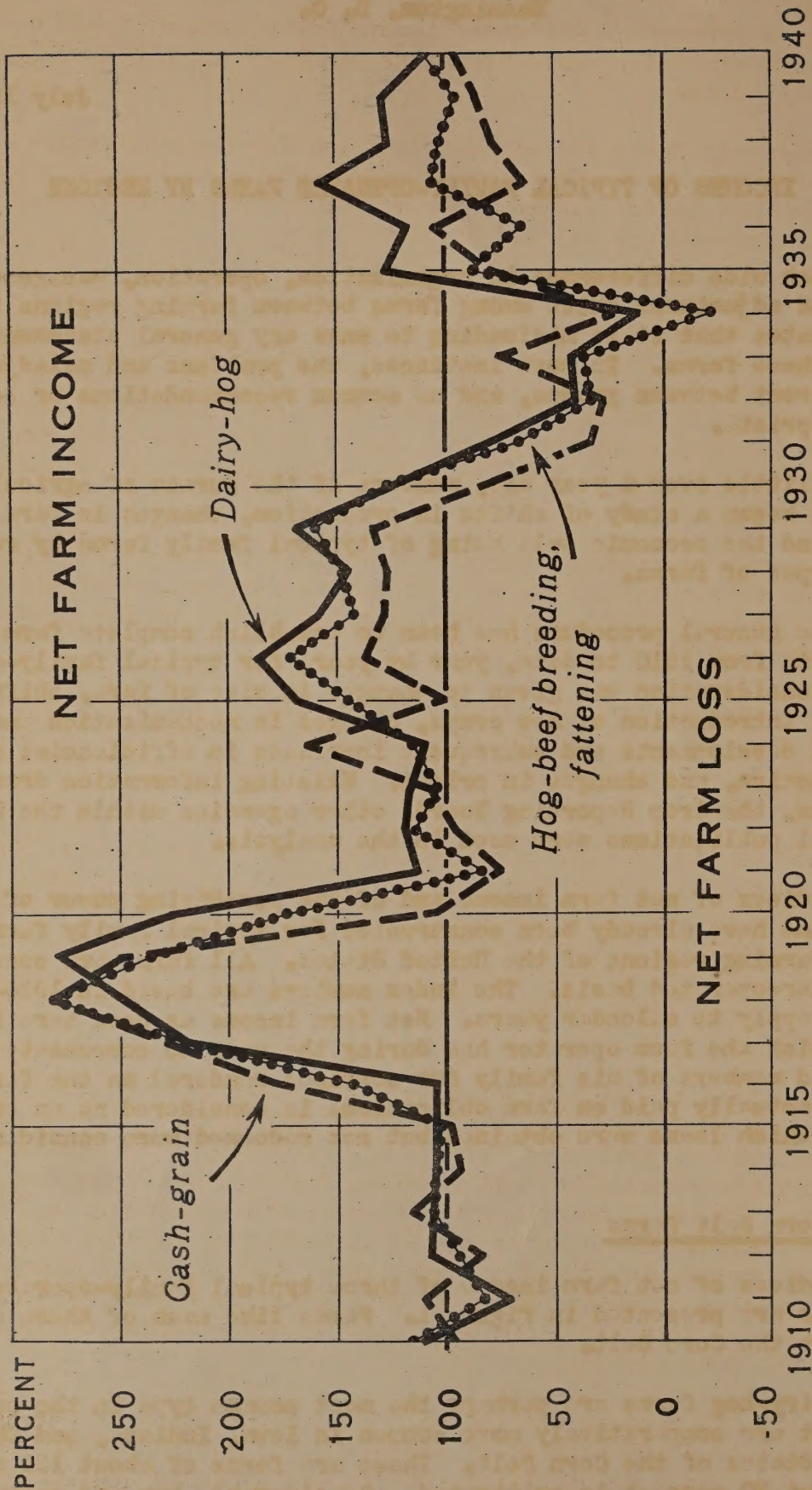
Indices of net farm income of three typical family-operated Corn Belt farms are presented in figure 1. Farms like each of these are common throughout the Corn Belt.

Dairy-hog farms are perhaps the most common type in the entire region but are comparatively more common in Iowa, Indiana, and Ohio, than in other States of the Corn Belt. These are farms of about 120 acres of which about 70 percent is cultivated. Considerable hay and pasture are produced on these farms. During the last few years, operators of these farms have milked about 8 cows and have sold about 65 head of hogs each



# INDICES OF NET FARM INCOME OF CORN BELT FARMS BY TYPE OF FARM

(1910-14 = 100)



U. S. DEPARTMENT OF AGRICULTURE

NEG. 38630

BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 1



year. Only 6 percent of the gross income during recent years has been from the sale of feeds, since operators of these farms generally neither buy nor sell feeds.

Cash-grain farms are concentrated chiefly in east-central Illinois and north-central Iowa. They are about 180 acres in size, almost 90 percent of the farm is cultivated, and over 60 percent of the gross income is from the direct sale of feed crops.

Hog-beef breeding and fattening farms are about 200 acres in size and are found mostly in the western part of the Corn Belt. In recent years, operators of these farms produced about 90 hogs and 15 head of beef each year. Most of the cattle that are fattened are raised on the farms; feeds are frequently bought by operators. Income on these farms was comparatively low in the drought years of 1934 and 1936, because their livestock programs forced these farmers to buy feed at relatively high prices.

Mechanization has advanced rather rapidly on Corn Belt farms. Cash-grain farms particularly have been affected, but the advantages of their mechanization have been hardly sufficient to offset higher production and better prices on livestock farms.

The index of net farm income since 1919 of dairy-hog farmers has generally been the most favorable of the three types. In fact, all livestock farmers, except during the droughts, seem to have fared better than cash-grain farmers.

The question naturally arises as to what these incomes mean in terms of purchasing power to the farmers. Will incomes of this year buy as many goods and services for the family as the income in 1910-14? (Expenditures for farm operations are deducted in calculating net farm income). We know that prices farmers pay for commodities and services in family living are higher today than in 1910-14. Have farm incomes risen to the same extent?

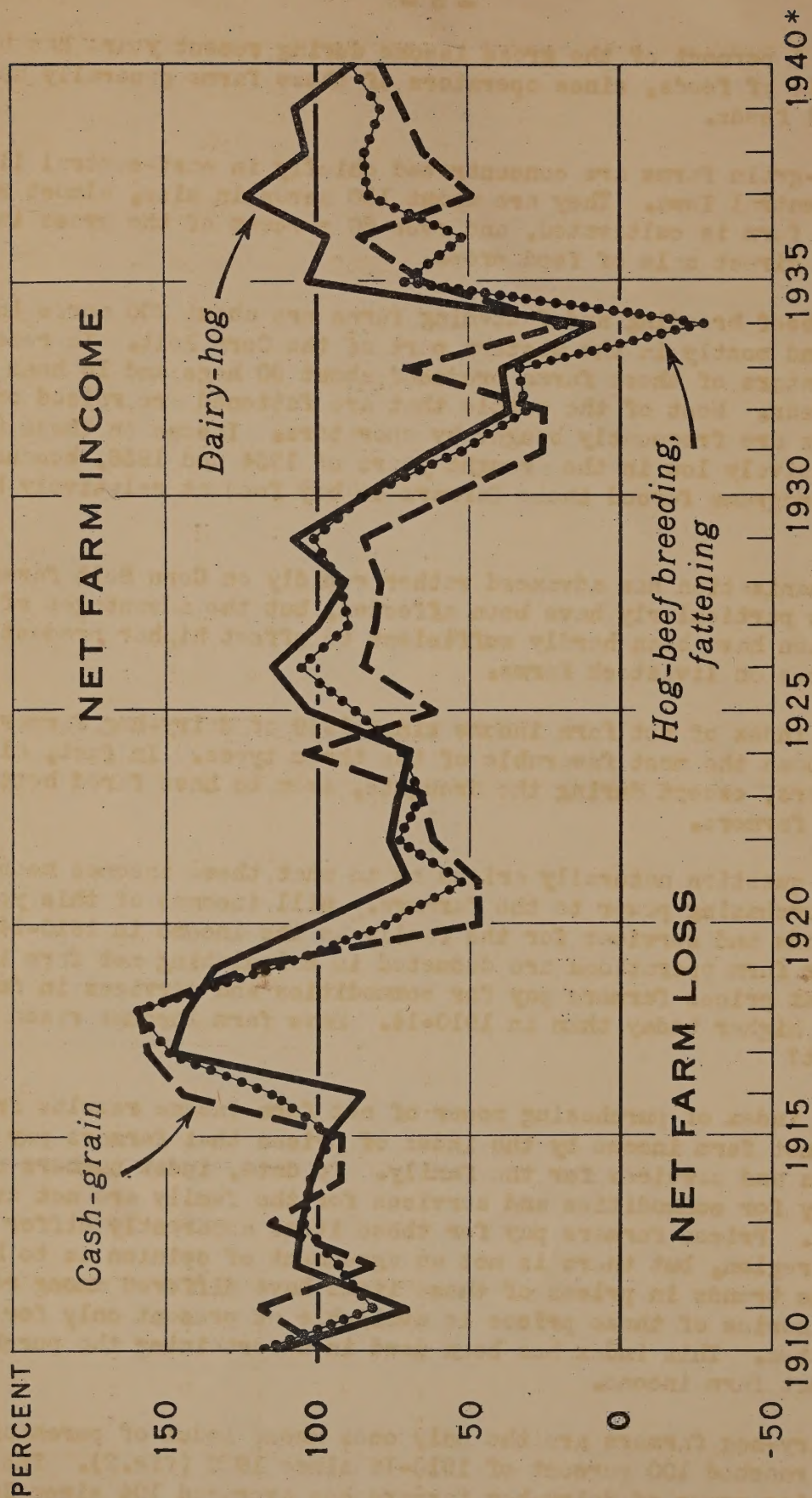
The index of purchasing power of net farm income results from adjusting net farm income by the index of prices that farmers pay for commodities and services for the family. To date, index numbers of prices farmers pay for commodities and services for the family are not available by regions. Prices farmers pay for these items apparently differ from region to region, but there is not an agreement of opinion as to how much, if any, the trends in prices of these items have differed among regions. The index series of these prices is available at present only for the United States. This index has been used in ascertaining the purchasing power of net farm income.

Dairy-hog farmers are the only ones whose index of purchasing power has reached 100 percent of 1910-14 since 1929 (fig.2). The index of purchasing power of dairy-hog farmers has averaged 104 since 1934,



# INDICES OF PURCHASING POWER OF NET FARM INCOME OF CORN BELT FARMS BY TYPE OF FARM

(1910-14 = 100)



\* COMPUTED FROM ESTIMATES OF PRODUCTION AND PRICES

FIGURE 2



## Organization of typical Corn Belt farms, 1937-39

| Item  | Type of farm |            |                               |
|---|--------------|------------|-------------------------------|
|   | Dairy-hay    | Cash grain | Hog-beef-breed-ing, fattening |
| Acres per farm                                  | 118          | 181        | 196                           |
| Acres in crops                                  | 83           | 156        | 143                           |
| Percentage of farm cultivated                   | 71           | 88         | 74                            |
| Acres in corn                                   | 28.7         | 77.8       | 52.0                          |
| Yield of corn                                   | 50.3         | 59.7       | 56.4                          |
| Acres of small grain                            | 24.0         | 53.9       | 37.1                          |
| Acres hay                                       | 14.4         | 8.4        | 25.0                          |
| Number of cows milked                           | 7.7          | 4.1        | 4.6                           |
| Cwt. hogs sold                                  | 139          | 66         | 201                           |
| Cwt. cattle sold                                | 30           | 24         | 98                            |
| Cwt. sheep sold                                 | 6.4          | 1.5        | 4.5                           |
| Proportion of gross income from various sources |              |            |                               |
|   | Percent      | Percent    | Percent                       |
| Corn  |              | 45         | 4                             |
| Small grain                                     | 4            | 12         | 4                             |
| Other crops                                     | 2            | 3          | 1                             |
| All crops                                       | 6            | 60         | 9                             |
| Hogs  | 45           | 15         | 44                            |
| Cattle  | 10           | 6          | 25                            |
| Sheep and poultry                               | 5            | 2          | 4                             |
| All livestock                                   | 60           | 23         | 73                            |
| Dairy products                                  | 20           | 7          | 6                             |
| Poultry products                                | 8            | 5          | 6                             |
| Wool and other livestock products               | 1            | -          | 1                             |
| All livestock products                          | 29           | 12         | 13                            |
| Other income                                    | 5            | 5          | 5                             |
| Total   | 100          | 100        | 100                           |



compared with 76 and 69 respectively for hog-beef breeding-and-fattening and cash-grain farms during the same 6 years.

### Typical Winter Wheat Farms

Indices of net farm income of typical winter-wheat farms in the southern Great Plains areas are found in figure 3 <sup>1/</sup>. Farmers in this area have maintained their farm incomes during the last 30 years by changing their farm organizations to keep up with technological developments. Many small farmers have found it unprofitable to remain in the area and their departure has made more land available to those who stayed. These remaining farmers have increased the size of their farms to utilize machinery effectively. In general, they have had favorable incomes, relative to 1910-14, in most of the years since 1914.

The income on these farms has varied considerably from year to year. Wheat farmers in general have had the best income record and wheat-corn-livestock farmers the poorest income record. The index of net farm income on wheat farms has averaged 143; on wheat-grain sorghum-livestock farms 133 and on wheat-corn-livestock farms 102 during the last 7 years.

A study of the typical farming systems, upon which these indices of net farm income are based, reveals some striking technological changes, such as: (1) An almost complete shift from horse operation to tractor operation; (2) changes in harvesting equipment; (3) fairly steady increases in acreage operated to adopt systems to the more efficient use of mechanical power and equipment.

Wheat farms are now operated almost entirely by tractors, whereas, in 1910, draft animals furnished the drawbar power. Methods of wheat harvest have changed from binder or header harvest to a nearly 100 percent combine harvesting. The major expense on these farms in recent years has been for power and machinery operation and upkeep.

Upward trends in size of farms in this area have been in evidence for some time. The first upward surge in size started during World War I and continued to 1929. During the depression years the size of the wheat farm remained about the same but the size of wheat-grain-sorghum livestock

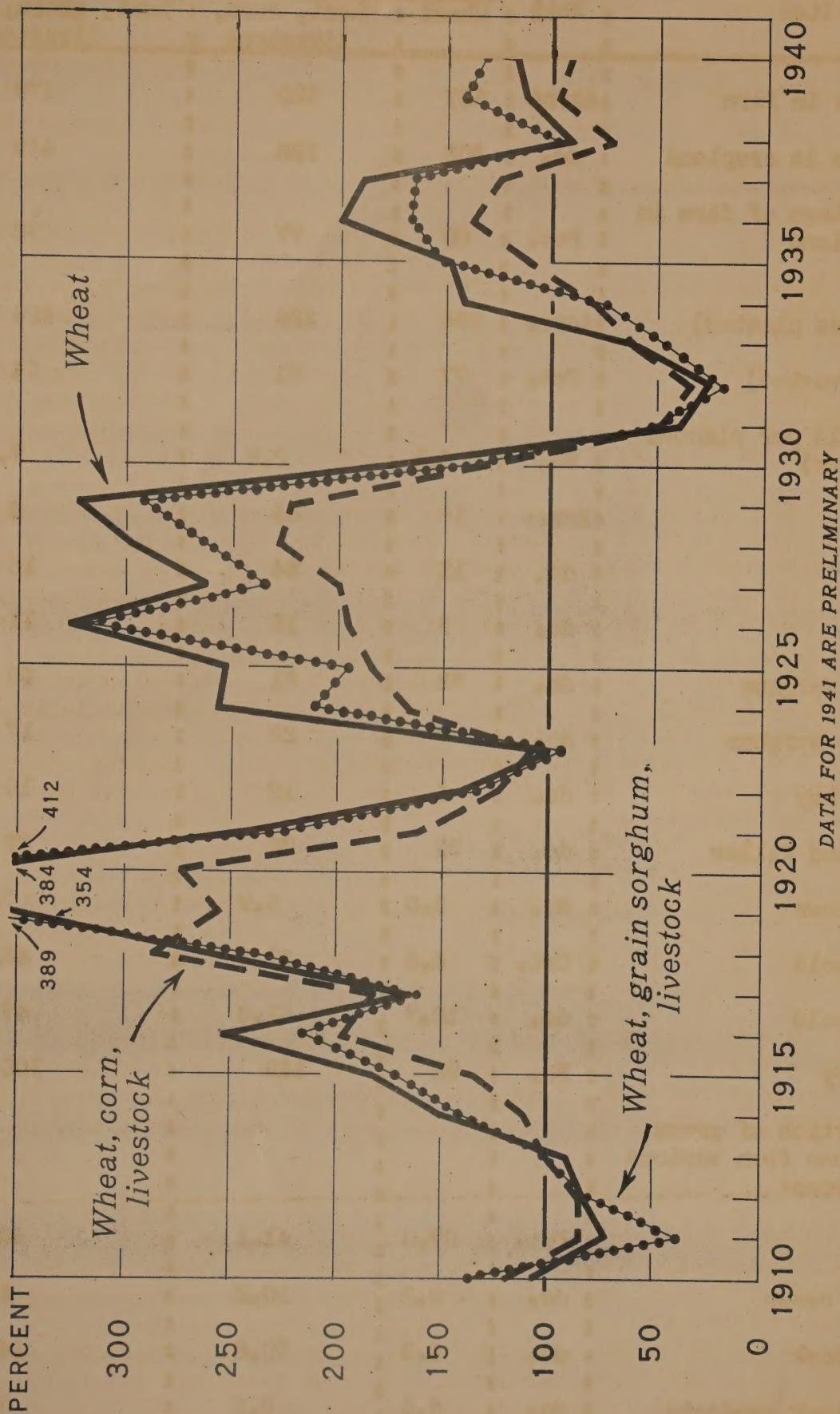
---

<sup>1/</sup> The area is comprised of the western two-thirds of Kansas; the panhandle of Oklahoma; the panhandle of Texas; a very small part of northeastern New Mexico; a small part of northeastern Colorado and southwestern Nebraska. The wheat farms are common throughout the area. Wheat-corn-livestock farms are more common in the eastern, north-central, and west-north-central portions of the area. Wheat-grain-sorghum livestock farms are located largely in the southern and southwestern portions of the area.



# INDICES OF NET FARM INCOME OF WINTER WHEAT AREA FARMS BY TYPE OF FARM

(1910-14=100)



DATA FOR 1941 ARE PRELIMINARY

FIGURE 3



- 8 -  
 Organization of typical farms in winter wheat area,  
 1937-39

| Item   | Unit  | Type of farm |                        |                                  |
|--|-------|--------------|------------------------|----------------------------------|
|  |       | Wheat        | Wheat, corn, livestock | Wheat, grain, sorghum, livestock |
| Acreage in farm                                  | Acres | 567          | 520                    | 579                              |
| Acreage in cropland                              | do.   | 503          | 398                    | 449                              |
| Percentage of farm in cropland                   | Pct.  | 89           | 77                     | 78                               |
| Wheat:   |       |              |                        |                                  |
| (Acres planted)                                  | Acres | 394          | 226                    | 294                              |
| (Harvested)                                      | Pct.  | 77           | 81                     | 74                               |
| (Yield per planted acre)                         | Bu.   | 8.1          | 8.8                    | 7.6                              |
| Corn   | Acres | 18           | 43                     | 3                                |
| Barley   | do.   | 11           | 24                     | 16                               |
| Oats   | do.   | 5            | 15                     | 11                               |
| Grain sorghum                                    | do.   | 32           | 21                     | 69                               |
| Forage sorghum                                   | do.   | 7            | 22                     | 17                               |
| Other hay  | do.   | 4            | 19                     | 10                               |
| Idle and fallow                                  | do.   | 32           | 22                     | 29                               |
| Milk cows  | No.   | 3.0          | 6.9                    | 7.0                              |
| Pork sold  | Cwt.  | 4.3          | 61.2                   | 46.0                             |
| Beef sold  | do.   | 10.7         | 51.8                   | 47.0                             |
| Poultry  | No.   | 92           | 149                    | 106                              |
| Proportion of gross income from various sources: |       |              |                        |                                  |
| Wheat  | Pct.  | 67.0         | 41.1                   | 46.6                             |
| Other crops                                      | do.   | 9.3          | 10.2                   | 8.7                              |
| Livestock  | do.   | 4.5          | 30.8                   | 24.3                             |
| Livestock products                               | do.   | 4.2          | 8.5                    | 7.8                              |
| AAA  | Pct.  | 15.0         | 9.4                    | 12.6                             |
| Total  |       | 100.0        | 100.0                  | 100.0                            |



type of farm showed some evidence of a decline. Since 1936, the trend in size has again been upward. By 1940, typical wheat and wheat-grain sorghum-livestock farmers were operating about twice as many acres as in 1910, and typical wheat-corn-livestock farmers were operating 50 per cent more acres than in 1910. During 1937-39 wheat farmers were cropping an average of 500 acres. Wheat-corn-livestock farmers and wheat-grain sorghum-livestock farmers during this same period were cropping 400 and 450 acres, respectively.

The degree of adjustment in size has differed considerably among the types of farms. This difference affects the comparison of net farm incomes, but can be obviated by comparisons of income per 100 crop acres. Figure 4, constructed on a 100-crop-acre basis, indicates that most of the differences (in recent years) in the indices of net farm income have been caused by the degree of acreage adjustments. On this basis the index of net farm income has been below 100 for all types since 1930, except in 1936 when the index rose to 106 for wheat farms and to 100 for wheat-corn-livestock farms.

Indices of purchasing power of net farm income for these farms on the actual acreage basis are given in figure 5. Wheat farmers have usually had the highest index of purchasing power and corn-livestock farmers the lowest. The index of purchasing power of net farm income including Government payments since 1933 has averaged 116 for wheat farmers, 108 for wheat-grain sorghum-livestock farmers and 83 for wheat-corn-livestock farmers.

### Typical Cotton Farms

Many general and very sweeping statements have been made during late years concerning the incomes of cotton farmers in the South. That these statements are likely to be misleading especially when applied to any particular area is evident from indices of net farm returns of cotton farmers in three separate areas of the South (fig.6).

Each of the organizations represented in these indices is typical of family-size cotton farms in the indicated area of the South, but each organization is different and the shifts made by the operators to meet changing economic conditions are significantly different.

The two-mule cotton farms in Georgia are typical of a large group of farms in the Old South, an area in which cotton farming has been established for a long time. Cotton farming became prominent in the other areas considerably later, particularly in the Delta of Mississippi, and was well established in each of the areas by 1910. The Mississippi Delta is a comparatively new farming area, however, and considerable land was still being reclaimed and farm organizations were undergoing considerable change long after 1910.



# INDICES OF NET INCOME PER 100 CROP ACRES IN WINTER WHEAT AREA FARMS BY TYPE OF FARM

( 1910-14=100 )

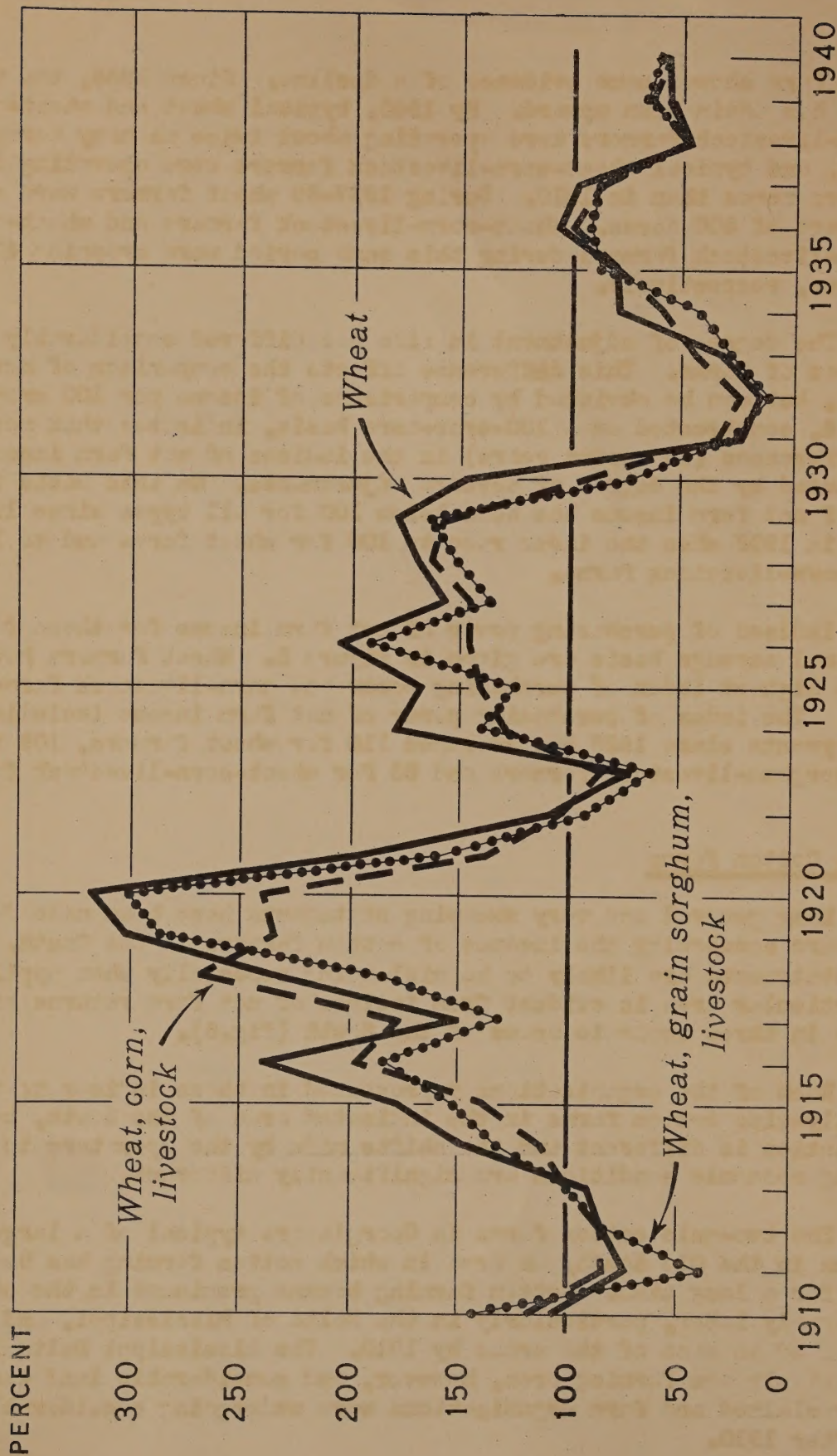
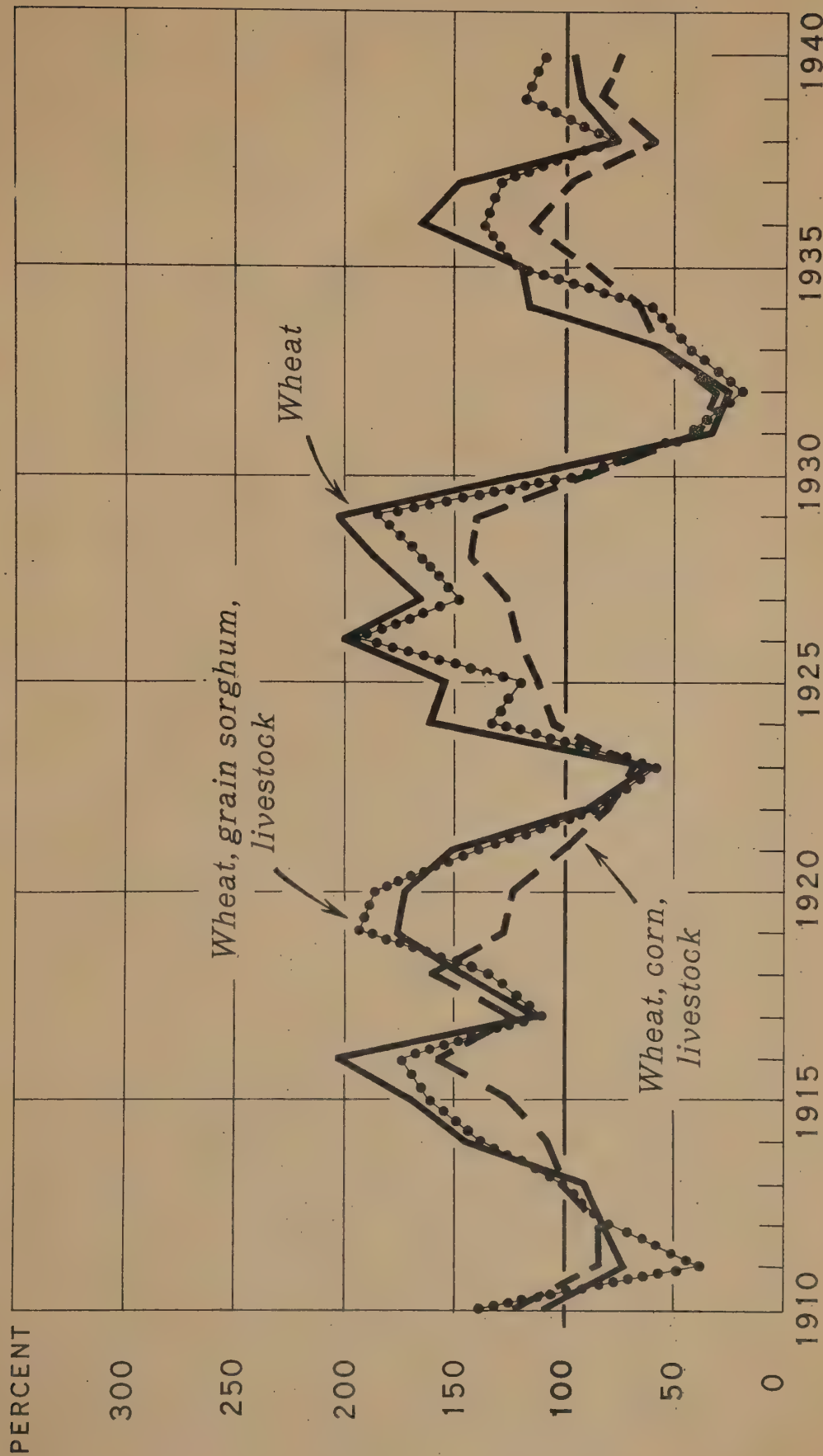


FIGURE 4



# INDICES OF PURCHASING POWER OF NET FARM INCOME OF WINTER WHEAT AREA BY TYPE OF FARM

( 1910-14=100 )



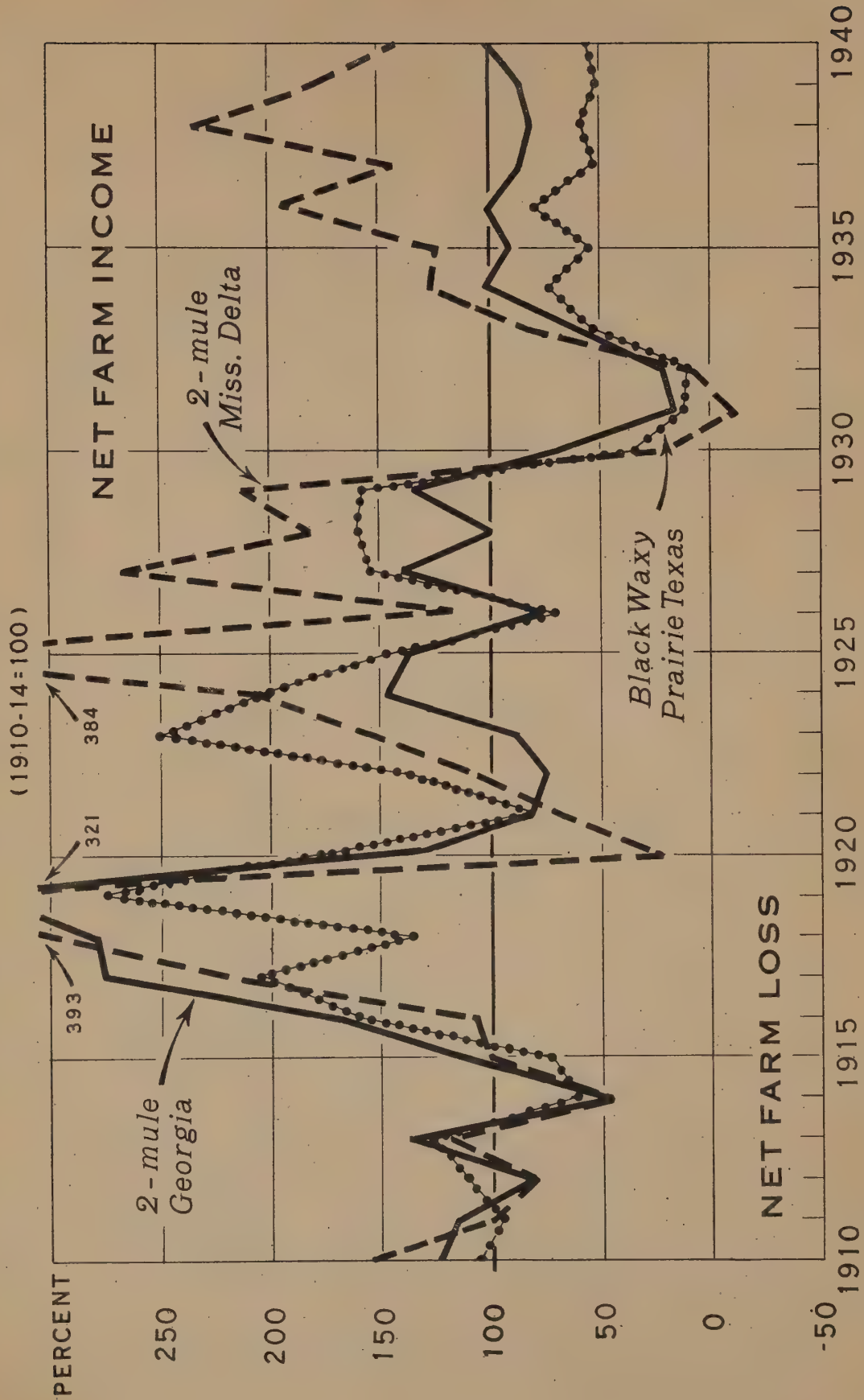
U. S. DEPARTMENT OF AGRICULTURE

NEG. 39277 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 5



# INDICES OF NET FARM INCOME OF TYPICAL COTTON FARMS, 1910-40



U.S. DEPARTMENT OF AGRICULTURE

NEG. 39186

BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 6



- 13 -  
Organization of typical cotton farms,  
1937-39

| Item  | Type of farm   |                          |                           |
|---|----------------|--------------------------|---------------------------|
|   | 2-mule Georgia | 2-mule Mississippi Delta | Black Waxy Prairie, Texas |
| Acres in farm                                   | 81.9           | 40.9                     | 101                       |
| Acres cultivated                                | 39.2           | 30.2                     | 87                        |
| Percentage of farm cultivated                   | 47.9           | 73.8                     | 86                        |
| Acres cotton                                    | 11.6           | 13.8                     | 37.6                      |
| Yield of cotton, pounds lint                    | 244            | 426                      | 183                       |
| Acres corn                                      | 16.6           | 9.7                      | 17.0                      |
| Acres other grains                              | 10.3           | 2.8                      | 8.1                       |
| Acres hay                                       | 1/ (5.0)       | 2.3                      | 9.4                       |
| Acres pasture                                   | 8.6            | 5.0                      | 12.0                      |
| Workstock, head                                 | 2.0            | 2.0                      | 3.7                       |
| Cattle, head                                    | 2.6            | 1.9                      | 3.5                       |
| Hogs, head                                      | 4.0            | 5.0                      | 5.1                       |
| Hens, number                                    | 40.0           | 45.0                     | 60.0                      |
| Proportion of gross income from various sources |                |                          |                           |
|   | Percent        | Percent                  | Percent                   |
| Cotton and cottonseed                           | 59             | 79                       | 64                        |
| Other crops                                     | 5              | 0                        | 4                         |
| Livestock                                       | 6              | 3                        | 4                         |
| Livestock products                              | 13             | 5                        | 11                        |
| AAA   | 17             | 13                       | 17                        |
| Total   | 100            | 100                      | 100                       |

1/ Double-cropped



Striking changes in farm organization have been made in each area. Each group of farmers has increased acreages of corn, hay, and other feed crops; increased its livestock program; and reduced drastically the acreage of cotton. Farmers in Georgia have increased their livestock enterprises to the extent that feed crops are still utilized on the farms, whereas farmers in the Black Waxy area are selling more feed crops than formerly. Farmers in the Delta are now producing enough feed crops whereas formerly, although their livestock programs were small, they were buying feeds. In 1938, this area had a slight excess of feeds--this is the only year in which this has happened.

These shifts and changes are reflected in the indices of net farm income. The index of net farm income including Government payments for Delta farmers has been comparatively high since 1933, mostly because the farmers have been able to increase their production substantially without any material increase in costs. They are now producing 45 percent more cotton on 28 percent less acreage, and are spending slightly less for fertilizer than during 1928-32. These farmers have almost doubled their yields of cotton since the adjustment program started. Less than 4 percent of their total expenditure is made for fertilizer.

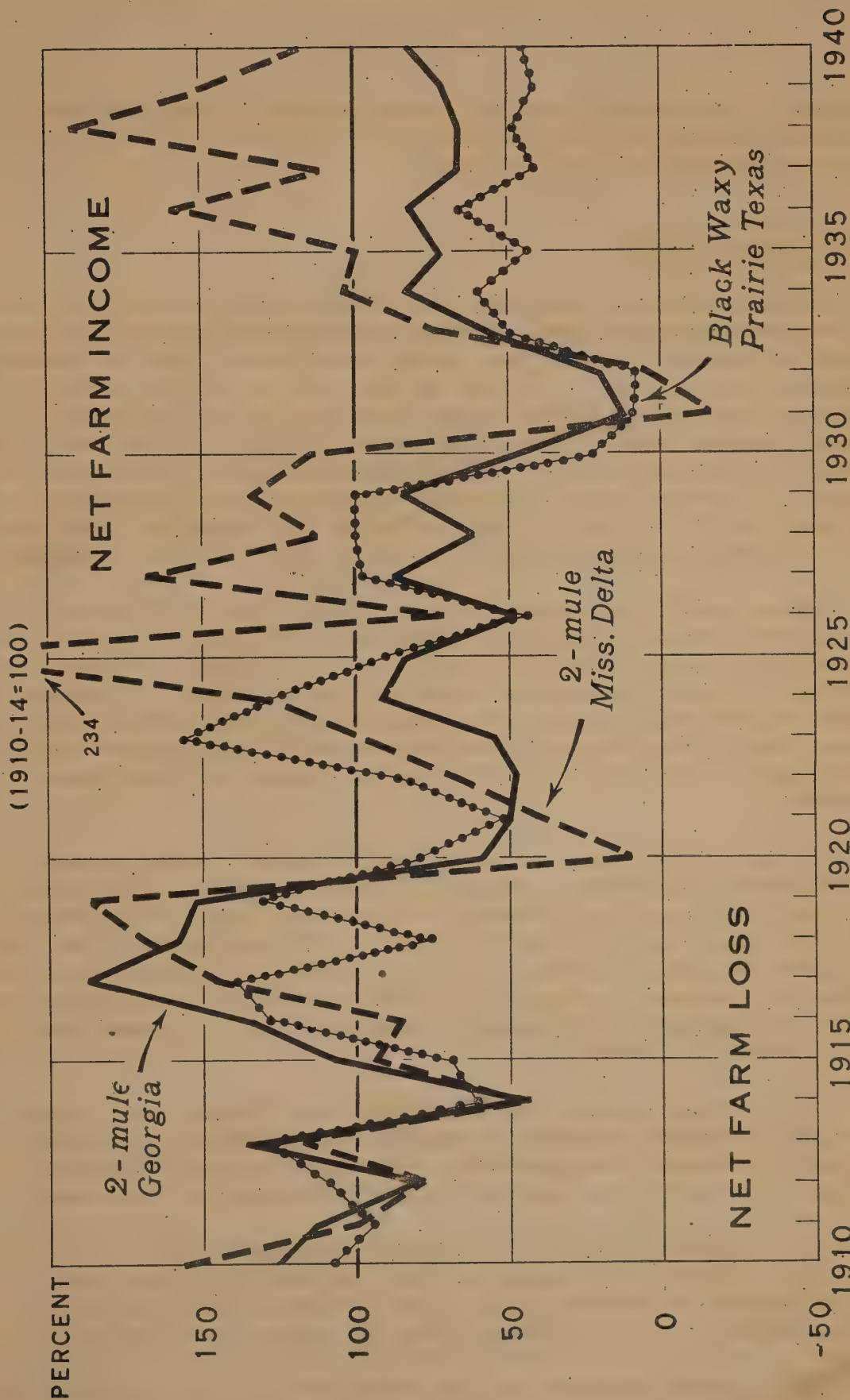
The index of farm income of Georgia farmers has generally been less favorable than of Delta farmers. This has been true particularly since 1933. These farmers are now producing the same quantity of cotton as during the period 1928-32, but they have reduced the acreage of cotton by 24 percent and are spending 17 percent less for fertilizer than in that period. Even so, more than 32 percent of their total expenditure now is for fertilizer. In contrast, farmers in the Black Waxy area have had the lowest index of net farm income during recent years. These farmers are now producing 20 percent less cotton on one-third less land than during the period 1928-32. Farmers in the Black Waxy area have never used commercial fertilizers extensively in cotton production.

The typical Black Waxy cotton farm, in terms of acres cultivated is, almost three times the size of the Delta farm and more than double the size of the Georgia farm. Since the early 1930's farmers in the Black Waxy area have mechanized their farms considerably. Approximately 30 percent of the total expenditure on these farms in 1937-39 was for machinery operation and replacement in contrast to an average of 12 percent from 1910 to 1932. Little mechanization has taken place on the Georgia or Delta farms.

The index of purchasing power of cotton farmers in Georgia has never reached 100 percent of 1910-14 since 1919 (fig.7). It has averaged only 75 during the last 7 years. The index of purchasing power of cotton farmers in the Black Waxy area has exceeded 100 in only 2 years (1923 and 1924) since 1919, and has averaged only 49 during the last 7 years.



# INDICES OF PURCHASING POWER OF NET FARM INCOME OF TYPICAL COTTON FARMS, 1910-40



U. S. DEPARTMENT OF AGRICULTURE

NEG. 39187 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 7



In contrast, purchasing power of cotton farmers in the Mississippi Delta has been below 100 in only 10 years since 1919 and has averaged 134 percent of 1910-14 during the last 7 years.

#### Typical Tobacco Farms

Index numbers of net farm income of typical tobacco producers have also varied greatly by type. Owing to an especially favorable demand for tobacco during World War I, the index of net farm income of producers of flue-cured tobacco rose to a high of 565 percent of the 1910-14 (fig.8). The index for typical producers of fire-cured tobacco rose to only 363 in the same period. Both indices declined after the war, but the index for producers of flue-cured tobacco remained considerably above 100 until 1930, whereas the index of farm income for producers of fire-cured tobacco immediately fell to 91 in 1920 and was below 100 during 4 of the next 10 years. It has generally been lower than the index for flue-cured producers.

These shifts in income are the combined result of changes in foreign and domestic demand for tobacco, prices of tobacco, and changes in farm organization made by farmers to meet changes in demand and prices. Tobacco receipts, including Government payments, make up about 75 percent and 85 percent respectively of the gross income on fire-cured and flue-cured tobacco farms. Any change in the markets for the fire-cured and flue-cured tobacco crop materially affects the income and operations of tobacco farmers.

Flue-cured tobacco is one of the principal tobaccos used in the manufacture of cigarettes. Virginia fire-cured tobacco (used largely for snuff and Italian cigars, chewing, and nicotine) has largely been an export crop. For example, in the middle 1920's well over half of the Virginia fire-cured crop was exported. Both production and exports have been declining. Exports of fire-cured tobacco in 1937-39 were only 31 percent of the exports in 1923-26. Exports of flue-cured tobacco in 1937-39 were about 120 percent of the exports in 1923-26.

Unfavorable markets and resulting lower prices have caused some producers of fire-cured tobacco to abandon the enterprise. Some who formerly produced fire-cured tobacco grow no tobacco today but others whose farms have suitable soils have shifted to the production of flue-cured.

The typical producer of Virginia fire-cured tobacco has gradually reduced his acreage of tobacco and now has one-third less acreage of tobacco than in 1910-14 or 1928-32. He is now getting about 20 percent higher yields than in 1929-32 and is producing about 87 percent as much tobacco.

The typical producer of flue-cured tobacco has decreased his acreage of tobacco only 10 percent from the 1910-14 or 1928-32 average; and yet his yields are 37 percent greater and his production approximately 20 percent



# INDICES OF NET FARM INCOME OF TYPICAL TOBACCO FARMS, VIRGINIA, 1910-40

(1910-14=100)

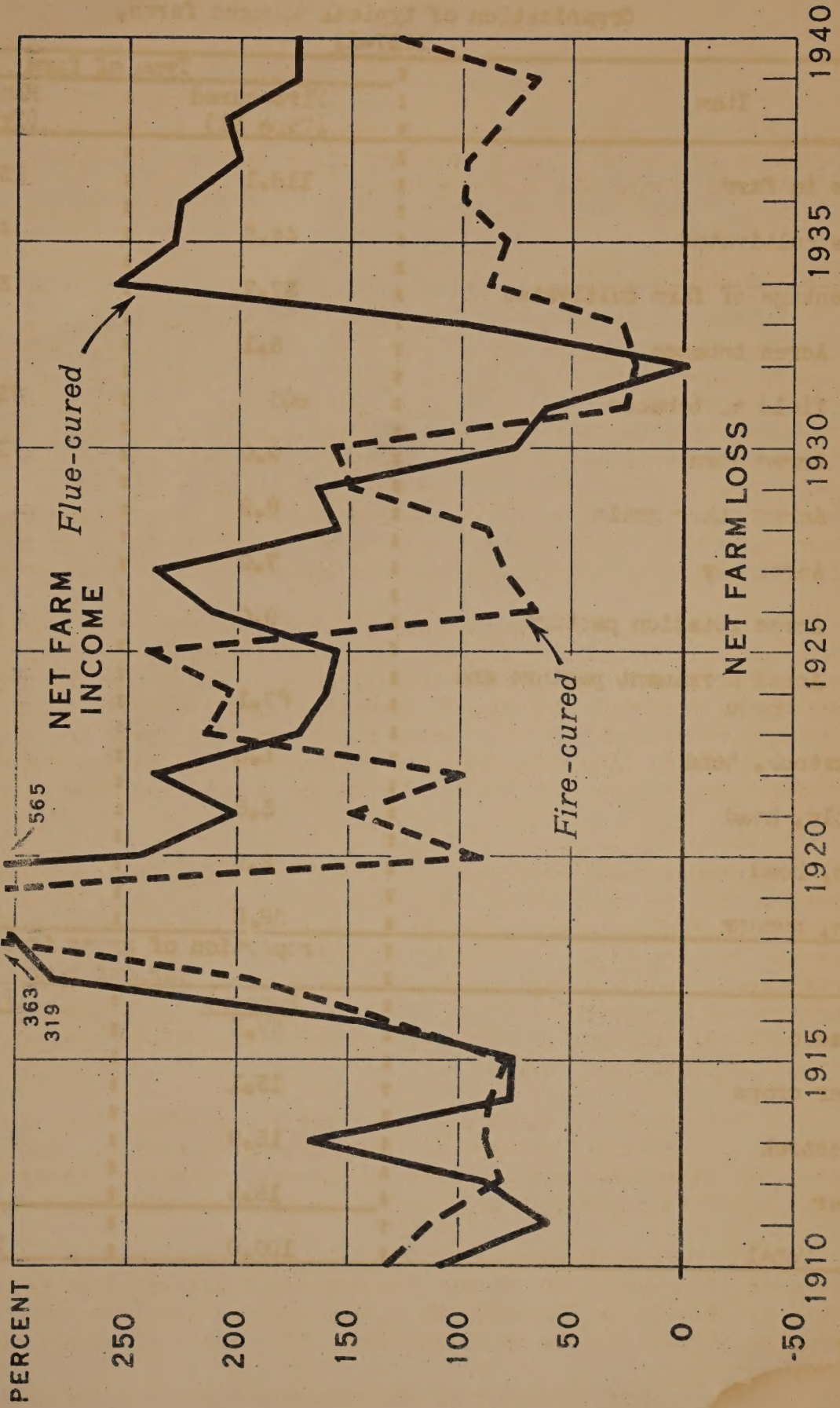


FIGURE 8



Organization of typical tobacco farms,  
1937-39

| Item   | Type of farm            |                         |
|--|-------------------------|-------------------------|
|  | Fire-cured<br>(Type 31) | Flue-cured<br>(Type 11) |
| Acres in farm                                      | 118.1                   | 133.6                   |
| Acres cultivated                                   | 44.5                    | 48.2                    |
| Percentage of farm cultivated                      | 37.7                    | 36.1                    |
| Acres tobacco                                      | 5.1                     | 7.3                     |
| Yield of tobacco                                   | 803                     | 737                     |
| Acres corn   | 9.0                     | 10.8                    |
| Acres other grain                                  | 8.9                     | 6.8                     |
| Acres hay  | 7.0                     | 7.0                     |
| Acres rotation pasture                             | 9.0                     | 6.3                     |
| Acres permanent pasture and<br>woods               | 67.1                    | 79.4                    |
| Workstock, head                                    | 1.8                     | 2.0                     |
| Cattle, head                                       | 3.8                     | 3.2                     |
| Hogs, head   | 2.5                     | 2.1                     |
| Hens, number                                       | 38.6                    | 36.0                    |
| Proportion of gross income from<br>various sources |                         |                         |
|  | Percent                 | Percent                 |
| Tobacco  | 57.5                    | 81.4                    |
| Other crops  | 13.1                    | 5.3                     |
| Livestock  | 13.9                    | 7.9                     |
| Other  | 15.5                    | 5.4                     |
| Total  | 100.0                   | 100.0                   |

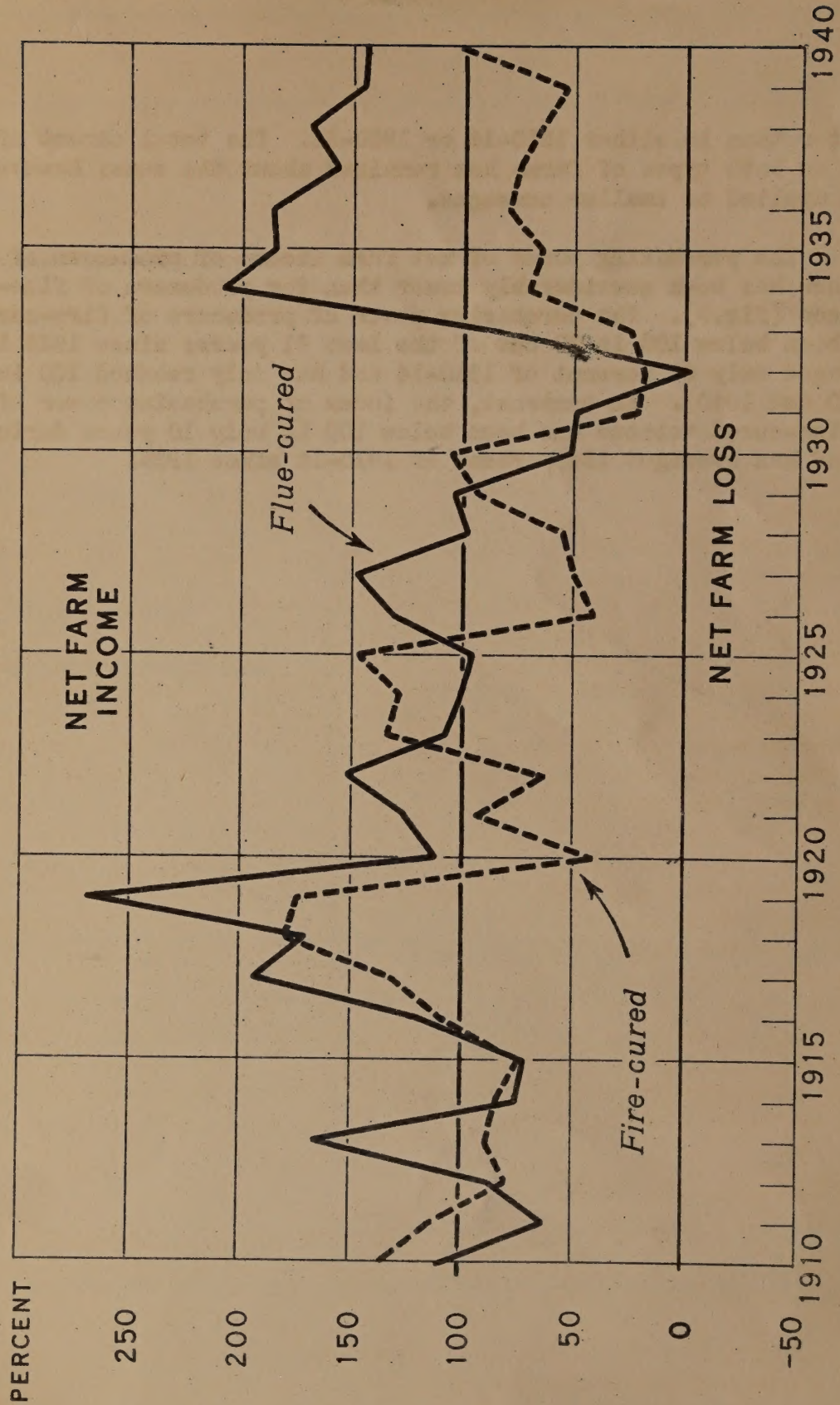


greater than in either 1910-14 or 1928-32. The total amount of fertilizer used on both types of farms has remained about the same; however, it has been applied to smaller acreages.

The purchasing power of net farm income of producers of fire-cured tobacco has been considerably lower than for producers of flue-cured tobacco (fig.9). The purchasing power of producers of fire-cured tobacco has been below 100 in 20 out of the last 31 years; since 1926 it has averaged only 62 percent of 1910-14 and has only reached 100 in 2 years (1930 and 1940). In contrast, the index of purchasing power of producers of flue-cured tobacco has been below 100 in only 10 years during the past 31 and has averaged 124 percent of 1910-14 since 1926.

# INDICES OF PURCHASING POWER OF NET FARM INCOME OF TYPICAL TOBACCO FARMS, VIRGINIA, 1910-40

(1910-14=100)



U. S. DEPARTMENT OF AGRICULTURE

NEG. 39365 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 9